A.4 Supplier Data Sheet

DfE Printed Wiring Board Project
Alternative Technologies for Making Holes Conductive (MHC)

Manufacturer/Supplier Product Data Sheet

Manufacturer Name: ______________________________

Address: ______________________________

____

Contact: ______________________________

Phone: ______________________________

Fax: ______________________________

How many alternative making holes conductive product lines will you submit for testing?__________

Please complete a Data Sheet for each product line you wish to submit for testing. In addition, if you have not already done so, please submit the material safety data sheets (MSDS), product literature, and the standard manufacturer instructions for each product line submitted.

Product Line Name: ______________________________ **Category:*** _______

*** Categories of Product Lines:**

A. Electroless copper
B. Carbon-based
C. Graphite-based
D. Palladium-based
E. Non-formaldehyde electroless
F. Copper seed
G. Anisotropic
H. Electroless Nickel
I. Drill Smear (Lomerson)
J. Conductive inks
K. Conductive polymer
L. Other

For the product line listed above, please identify one or two facilities that are currently using the product line at which you would like your product demonstrated. Also, identify the location of the site (city, state) and whether the site is 1) a customer production site, 2) a customer test site, or 3) your own supplier testing site.

Facility 1 Name and Location:______________________________

Type of Site: ______________________________

Facility Contact: ______________________________

May we contact the facility at this time (yes or no):______________________________

Facility 2 Name and Location: ______________________________

Type of Site: ______________________________

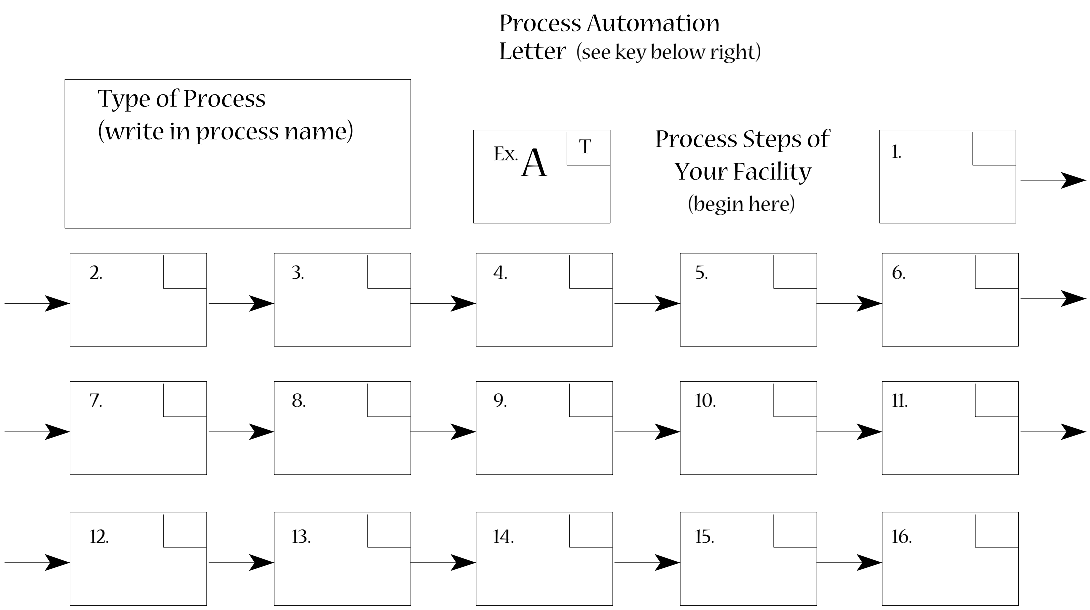
Facility Contact: ______________________________ Phone: ______________________________

May we contact the facility at this time (yes or no): ______________________________

Process Description

Process Schematic

Fill in the table below by identifying what type of making holes conductive process (e.g., electroless copper) your facility uses. Then, using the key at the bottom left of the page, identify which letter corresponds with the first bath step in your process and write that letter in the first box (see example). Continue using the key to fill in boxes for each step in your process until your entire making holes conductive process is represented. If your process step is not represented by the key below, complete the chart by writing in the name of the process step in your particular making holes conductive line. Finally, consult the process automation key at bottom right and enter the appropriate type of automation for the MHC process line. If the process is partially automated, enter the appropriate process automation letter for each step in the upper right-hand corner box (see example).



Standard Bath Types	
[A] - Center	[L] - Carbon
[B] - Conditioner	[M] - Fixer
[C] - Micro-Etch	[N] - Reducer
[D] - Pro-dip	[P] - Air Knife/Oven
[E] - Catalyst	[Q] - High pressure water
[F] - Activator	[R] - Neutralizer
[G] - Accelerator	[S] - Anti-tarnish
[H] - Enhancer	[W] - Water rinse
[J] - Electroless Copper	[O] - Other (specify step)
[K] - Graphite	

Process Automation

Type of Process Automation for Entire MHC Process
(Consult the key below)

If the MHC process is partially automated (option R), enter ‘R” on above line. Then, for each process step in chart above, consult the key below and enter the appropriate process automation letter in the box located in the upper right hand corner of each process step (see example).

Process Automation Key

[P] - Automated on-conveyorized	[S] - Manually controlled hoist
[Q] - Automated conveyorized	[T] - Manual (no information)
[R] - Partially automated	[A] - All of the above
	[V] - Other (specify)

Product Line Name ____

Please fill in the following table (for bath listings, please refer back to your process description on page 2):

Baths — Chemical Composition	Chemical Composition/Characteristics of Spent Bath[a]	Standard Container Size
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
Comments:		
[a] Do not include drag-out.		

Special Product Characteristics

1. Does the process operate as a vertical process, horizontal process, or either? ____________________

2. Is the process pattern-plate or panel-plate? ____

3. Does the process require scrubbing of panel after completion? _________________________________

4. Does the process require spray etch, scrub, or high-pressure rinse before imaging or electroplating? If so, which? ____

5. Are there any limitations for the acid copper plating process (e.g., pattern microetch, tank configuration, ASF)? Please explain.

____

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6. Are there any constraints on hold times as a result of the MHC process? _______________________

____

7. Please state cycle time. ____

8. Please describe any special process equipment recommended (e.g. high pressure rinse, air knife, dryer, aging equipment, etc.). ____

____

Product Line Constraints

1. Please list substrate compatibilities (e.g. BT, cyanate ester, Teflon, Kevlar, copper invar copper, polyethylene, other [specify]). ____

2. Please list compatibilities with drilling techniques. _______________________________________

____

3. Please list compatibilities with desmear processes (e.g. neutralization after permanganate, plasma, etc.).

____

4. List range of aspect ratio capacity. ____

5. List range of hole sizes. ____

6. List recommended oxide processes. ____

Other general comments about the product line (include any known impacts on other process steps).

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____

____

Bath Life

Please fill in the following table (for bath listings, please refer back to your process description on page 2):

Bath	Recommended Treatment/ Disposal Method[a]	Criteria for Dumping Bath[b] (e.g., time, ft^2 of panel processed, conductivity, etc.)	Recommended Bath Life
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

[a] Attach and reference additional materials, if necessary

Please specify criteria for calculation in the space below:

Costs:

Fill in the price of your product for each facility category.

	Estimated manufacturer price of product line to be tested based on recommended bath life*			
		Chemical cost per square foot panel per day	**Equipment cost per square foot panel per day**	**Water use (gallons per minute)**
Horizontal Process	Low-level throughput shop[a]			
	Medium-level throughput shop[b]			
	High-level throughput shop[c]			
Vertical Process	Low-level throughput shop			
	Medium-level throughput shop			
	High-level throughput shop			
Other (specify)	Low-level throughput shop			
	Medium-level throughput shop			
	High-level throughput shop			

[a] 2,000 surface square feet per day; 18" x 24" panel = 6 square feet
[b] 6,000 surface square feet per day
[c] 15,000 surface square feet per day
* Please include a description of the basis for your estimates (including assumptions about holes sizes, dragout, replenishment/replacement times, equipment life, and frequencies) in the space below.

Cost Estimate Calculation: